



WHY BUILD GREEN?



IMPACTS OF U.S. BUILDINGS ON RESOURCES

40% primary energy use*

72% electricity consumption*

39% CO₂ emissions*

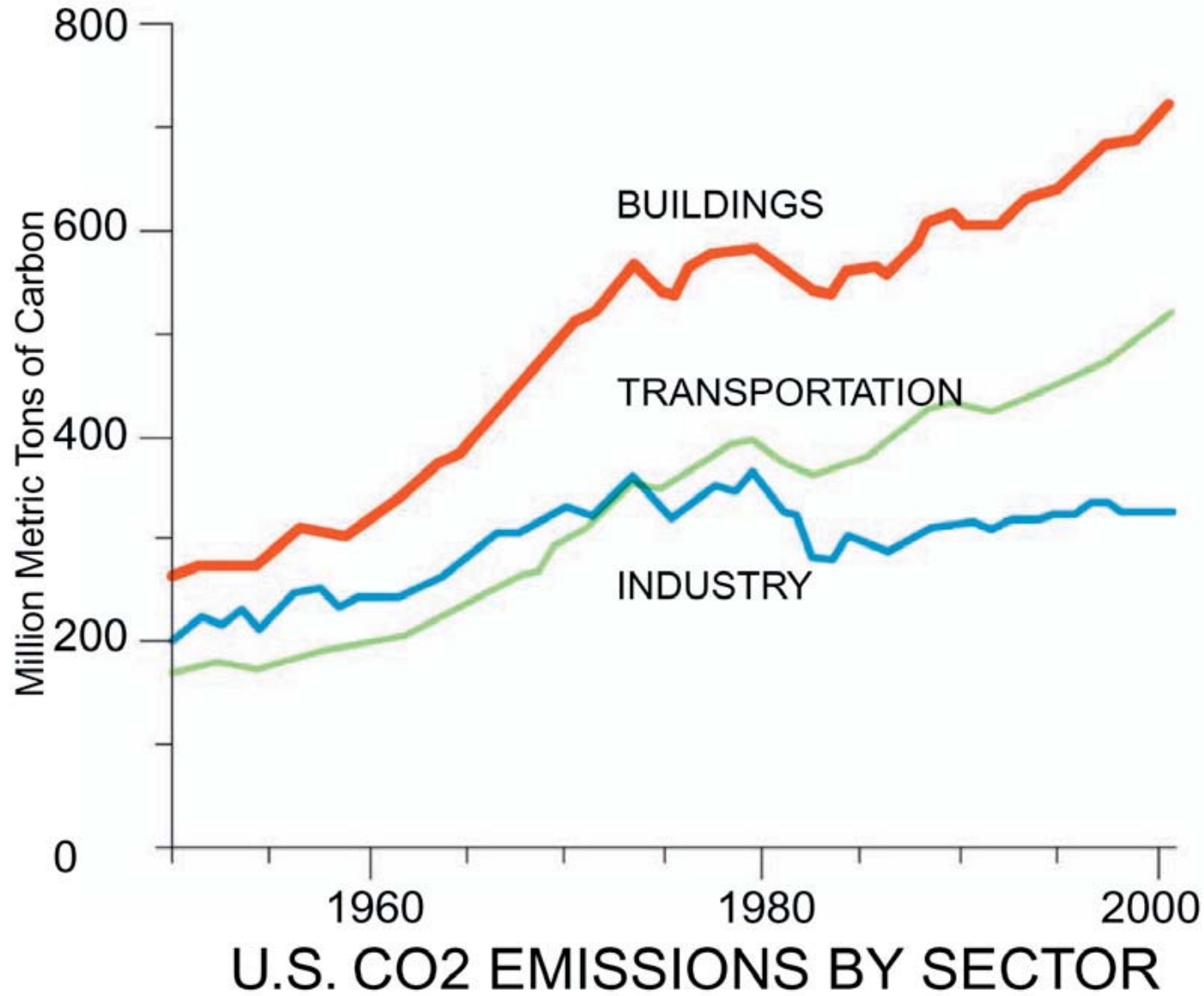
13.6% potable water consumption**

Sources:

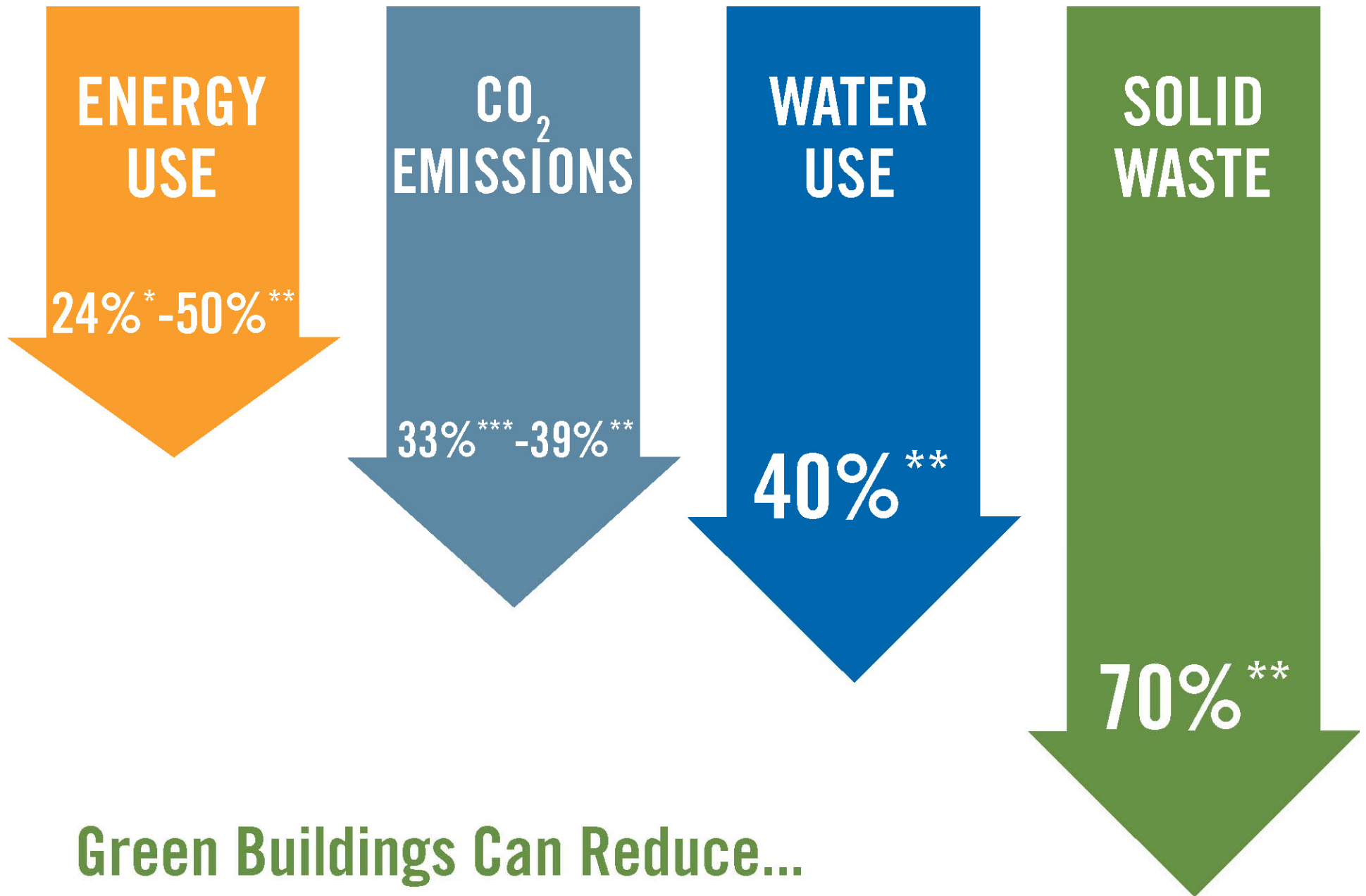
*Environmental Information Administration (2008). EIA Annual Energy Outlook.

** U.S. Geological Survey (2000). 2000 data.

Buildings Account For Half Of All Greenhouse Gas Emissions



Source: U.S. Energy Information Administration statistics



Green Buildings Can Reduce...

* Turner, C. & Frankel, M. (2008). Energy performance of LEED for New Construction buildings: Final report.

** Kats, G. (2003). The Costs and Financial Benefits of Green Building: A Report to California's Sustainable Building Task Force.

*** GSA Public Buildings Service (2008). Assessing green building performance: A post occupancy evaluation of 12 GSA buildings.

PERCEIVED BUSINESS BENEFITS TO GREEN

8-9%* operating cost decreases

7.5%* building value increases

6.6%* return on investment improves

3.5%* occupancy ratio increases

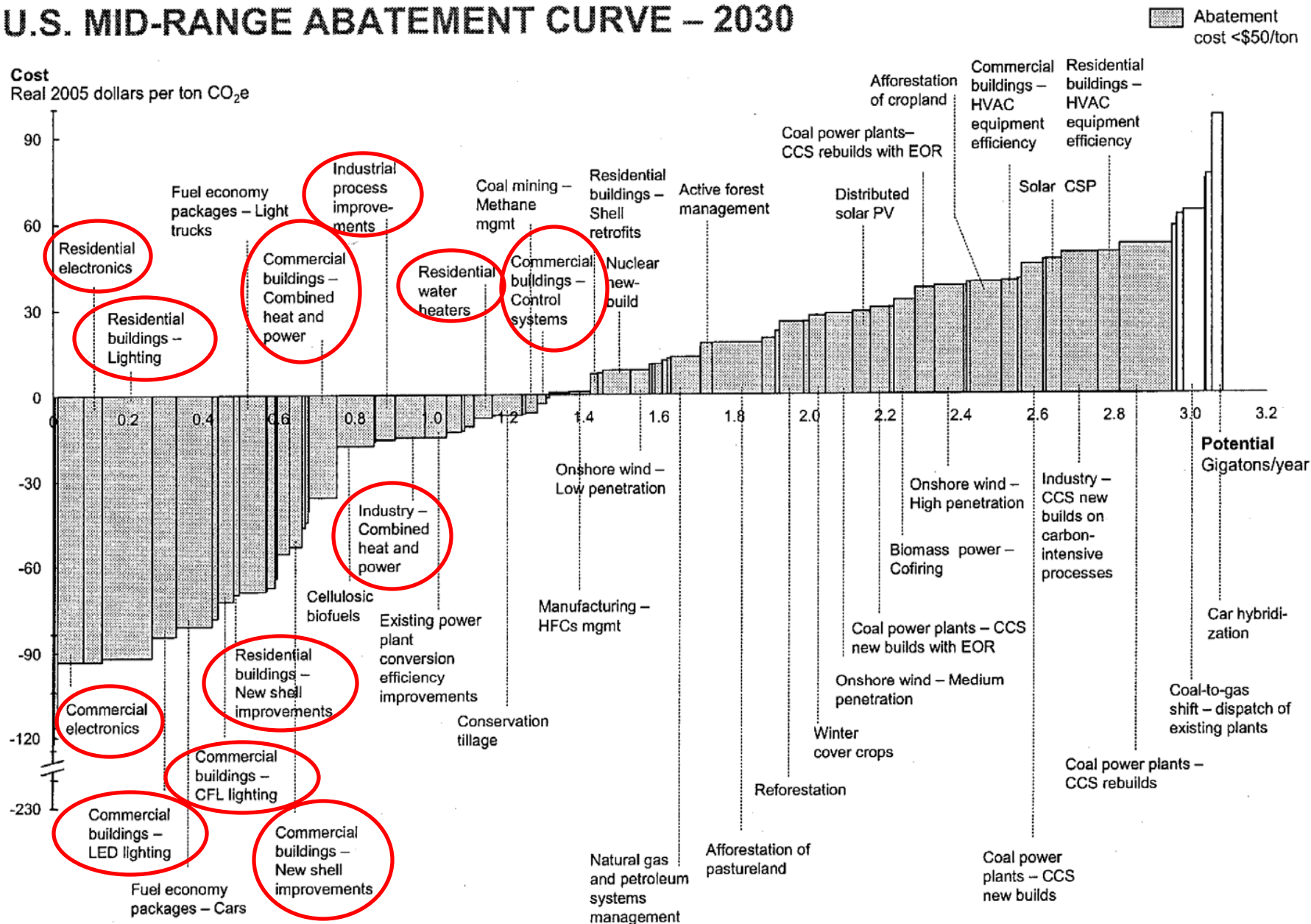
3%** rent ratio increases

* Source: McGraw-Hill Construction, Key Trends in the European and U.S. Construction Marketplace SmartMarket Report, 2008

** Source: McGraw-Hill Construction, Greening of Corporate America SmartMarket Report, 2007

Exhibit B

U.S. MID-RANGE ABATEMENT CURVE – 2030



Source: McKinsey analysis

OPPORTUNITIES IN BUILDING SECTOR

- Lighting*
- Mechanical/HVAC*
- Fenestration – Windows*
- Exterior Envelope Systems*
- Domestic Water Heating & Recirculation Systems*
- Plug Loads - Appliances & Equipment*
- Renewables
- Zoning
- Water Conservation
- Materials & Resources

NATIONAL PROGRAMS / INITIATIVES

- US Green Building Council
 - LEED
- Cascadia Region of USGBC
 - Living Building Challenge
- NAHB/GBI
 - Residential Green Building Guidelines
 - Green Globes
- American Institute of Architects
 - 50 to 50
 - 2030 Carbon Neutral

REID PARK ZOO CONSERVATION LEARNING CENTER

ARIZONA CHAPTER PROJECT PROFILE



LEE H. BROWN FAMILY
CONSERVATION LEARNING CENTER
Tucson, Arizona

48%

on-site renewable energy

75%

energy cost savings

53%

potable water use reduction

LEED® Facts Conservation Learning Center Tucson, Arizona

LEED for New Construction 2.1
Certification awarded December 2008

Platinum 58*

Sustainable Sites	9/14
Water Efficiency	5/5
Energy & Atmosphere	15/17
Materials & Resources	10/13
Indoor Environmental Quality	15/15
Innovation & Design	4/5

*Out of a possible 69 points

Performance or points were based on that awarded by the Green Building Certification Institute. USGBC and GreenSource do not warrant or guarantee the accuracy of the data. Each building's overall performance is subject to ongoing monitoring, evaluation, and maintenance. Design, construction, and operation are all subject to change.

REID PARK ZOO CONSERVATION LEARNING CENTER LEED CHECKLIST

**Version 2.1 Registered Project Checklis**

Reid Park Zoo School
Tucson, Arizona

Yes ? No

9	1	4
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Sustainable Sites

14 Points

Y		Prereq 1	Erosion & Sedimentation Control	Required
		Credit 1	Site Selection	1
		Credit 2	Development Density	1
		Credit 3	Brownfield Redevelopment	1
		Credit 4.1	Alternative Transportation, Public Transportation Access	1
		Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
		Credit 4.3	Alternative Transportation, Alternative Fuel Vehicles	1
		Credit 4.4	Alternative Transportation, Parking Capacity and Carpooling	1
	X	Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space	1
	X	Credit 5.2	Reduced Site Disturbance, Development Footprint	1
	X	Credit 6.1	Stormwater Management, Rate and Quantity	1
	X	Credit 6.2	Stormwater Management, Treatment	1
	X	Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1
	X	Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof	1
	X	Credit 8	Light Pollution Reduction	1

Yes ? No

5		
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Water Efficiency

5 Points

X			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
X			Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
X			Credit 2	Innovative Wastewater Technologies	1
X			Credit 3.1	Water Use Reduction, 20% Reduction	1
X			Credit 3.2	Water Use Reduction, 30% Reduction	1

Yes ? No

13	2	
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Energy & Atmosphere

17 Points

Y	Prereq 1	Fundamental Building Systems Commissioning	Required
Y	Prereq 2	Minimum Energy Performance	Required
Y	Prereq 3	CFC Reduction in HVAC&R Equipment	Required
6	Credit 1	Optimize Energy Performance	1 to 10
x	Credit 2.1	Renewable Energy, 5%	1
x	Credit 2.2	Renewable Energy, 10%	1
x	Credit 2.3	Renewable Energy, 20%	1
x	Credit 3	Additional Commissioning	1
x	Credit 4	Ozone Depletion	1
x	Credit 5	Measurement & Verification	1
x	Credit 6	Green Power	1

Yes ? No

8	2	3
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Materials & Resources

13 Points

Y	Prereq 1	Storage & Collection of Recyclables	Required
	Credit 1.1	Building Reuse , Maintain 75% of Existing Shell	1
	Credit 1.2	Building Reuse , Maintain 100% of Shell	1
	Credit 1.3	Building Reuse , Maintain 100% Shell & 50% Non-Shell	1
X	Credit 2.1	Construction Waste Management , Divert 50%	1
X	Credit 2.2	Construction Waste Management , Divert 75%	1
X	Credit 3.1	Resource Reuse , Specify 5%	1
	Credit 3.2	Resource Reuse , Specify 10%	1
X	Credit 4.1	Recycled Content , Specify 5% (post-consumer + ½ post-industrial)	1
X	Credit 4.2	Recycled Content , Specify 10% (post-consumer + ½ post-industrial)	1
X	Credit 5.1	Local/Regional Materials , 20% Manufactured Locally	1
X	Credit 5.2	Local/Regional Materials , of 20% Above, 50% Harvested Locally	1
	Credit 6	Rapidly Renewable Materials	1
X	Credit 7	Certified Wood	1

Yes	?	No
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15		
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Indoor Environmental Quality

15 Points

Y	Prereq 1	Minimum IAQ Performance	Required
Y	Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
X	Credit 1	Carbon Dioxide (CO ₂) Monitoring	1
X	Credit 2	Ventilation Effectiveness	1
X	Credit 3.1	Construction IAQ Management Plan, During Construction	1
X	Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
X	Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
X	Credit 4.2	Low-Emitting Materials, Paints	1
X	Credit 4.3	Low-Emitting Materials, Carpet	1
X	Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber	1
X	Credit 5	Indoor Chemical & Pollutant Source Control	1
X	Credit 6.1	Controllability of Systems, Perimeter	1
X	Credit 6.2	Controllability of Systems, Non-Perimeter	1
X	Credit 7.1	Thermal Comfort, Comply with ASHRAE 55-1992	1
X	Credit 7.2	Thermal Comfort, Permanent Monitoring System	1
X	Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
X	Credit 8.2	Daylight & Views, Views for 90% of Spaces	1

Yes ? No

5		
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Innovation & Design Process

5 Points

X		Credit 1.1	Innovation in Design: Provide Specific Title	1
X		Credit 1.2	Innovation in Design: Provide Specific Title	1
X		Credit 1.3	Innovation in Design: Provide Specific Title	1
X		Credit 1.4	Innovation in Design: Provide Specific Title	1
X		Credit 2	LEED™ Accredited Professional	1

Yes ? No

55	6	8
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Project Totals (pre-certification estimates)

69 Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

LOCAL EFFORTS / INITIATIVES

- Model Energy Code
- Native Plant Ordinance
- Commercial Rainwater Harvesting Ordinance
- Residential Greywater Ordinance
- Regulatory Mandates

- City and County Residential Green Building Programs
- City, County, State & U of A Green Building Standards (LEED Silver)
- Metropolitan Energy Commission

- State & Federal Tax Credits
- Water Rebates
- Energy Rebates

SUCCESSFUL PROJECTS / DEVELOPMENTS

- Biosphere II
- Civano & Civano Community School
- Milagro & other Co-Housing Developments
- Conservation Learning Center at Reid Park Zoo
- Davidson Elementary School
- Jackson Employment Center
- TEP's Planned LEED-Platinum Downtown Office Building
- Pennington Street Garage
- Existing Building Renovations